

U.S. DEPARTMENT OF COMMERCE, PATENT AND TRADEMARK OFFICE		DATE: <u>03</u> April 2001 (03 04.2001)
TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371		U.S. APPLN. NO. (if known) Not Yet Assigned 09/806949
INTERNATIONAL APPLICATION NO.: PCT/NL00/00523	INTERNATIONAL FILING DATE: 24 July 2000 (24.07.00)	PRIORITY DATE CLAIMED: 26 August 1999 (26.08.99)
TITLE OF INVENTION: A METHOD FOR THE PROTECTION OF GERMINATING SEED AND PESTICIDE-COATED PELLETS		
APPLICANT(S) FOR DO/EO/US: LEGRO, Robert Jean; HONKOOP, Sijbert		
<p>Applicant hereby submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:</p> <ol style="list-style-type: none"> <input checked="" type="checkbox"/> This is a FIRST submission of items concerning a filing under 35 U.S.C. 371. <input type="checkbox"/> This is a SECOND or SUBSEQUENT submission of items concerning a filing under 35 U.S.C. 371. <input checked="" type="checkbox"/> This express request to begin national examination procedures (35 USC 371(f)) The submission must include items(5), (6), (9) and (21) indicated below. <input type="checkbox"/> A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date. <input checked="" type="checkbox"/> A copy of the International Application as filed (35 U.S.C. 371(c)(2)): <ol style="list-style-type: none"> <input checked="" type="checkbox"/> is transmitted herewith (required only if not transmitted by the International Bureau). <input type="checkbox"/> has been communicated by the International Bureau. <input type="checkbox"/> is not required, as the application was filed in the United States Receiving Office (RO/US) <input type="checkbox"/> A English translation of the International Application as filed (35 U.S.C. 371(c)(2)). <input checked="" type="checkbox"/> Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3)) <ol style="list-style-type: none"> <input type="checkbox"/> are attached hereto (required only if not transmitted by the International Bureau). <input type="checkbox"/> have been communicated by the International Bureau. <input type="checkbox"/> have not been made; however, the time limit for making such amendments has NOT expired. <input checked="" type="checkbox"/> have not been made and will not be made. <input type="checkbox"/> An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)). <input checked="" type="checkbox"/> An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)). <input type="checkbox"/> A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)). <p>ITEMS 11 to 20 BELOW CONCERN OTHER DOCUMENT(S) OR INFORMATION INCLUDED:</p> <p>04/10/2001 UPDATE 80000438 0906949 Disclosure Statement under 37 CFR 1.97 and 1.98.</p> <ol style="list-style-type: none"> <input checked="" type="checkbox"/> An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included. <input checked="" type="checkbox"/> A FIRST preliminary amendment. <input type="checkbox"/> A SECOND or SUBSEQUENT preliminary amendment <input type="checkbox"/> A substitute specification. <input type="checkbox"/> A change of power of attorney and/or address letter. <input type="checkbox"/> A computer-readable form of the sequence listing in accordance with PCT Rule 13ter2 and 35 USC 1821 - 1825 <input type="checkbox"/> A second copy of the published international application under 35 USC 154(d)(4) <input type="checkbox"/> A second copy of the English language translation of the international application under 35 USC 154(d)(4) <input checked="" type="checkbox"/> Other items or information: <p>TRANSMITTAL FORM; FEE CALCULATION; INTERNATIONAL APPLICATION CONSISTING OF 12 PAGES INCLUDING; 7 PAGES TEXTUAL SPECIFICATION, 1 PAGE OF 6 CLAIMS; 1 SHEET CONTAINING THE ABSTRACT; 3 SHEETS DRAWINGS; PCT/ISA/210 INTERNATIONAL SEARCH REPORT; PCT/RO/101 REQUEST; EXECUTED INVENTOR'S DECLARATION; REQUEST FOR PRIORITY AND PRIORITY DOCUMENT No. 1012918.</p>		

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04/10/2001 UPDATE 80000438 0906949
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09/806949

JC08 Rec'd PCT/PTO 03 APR 2001

ATTORNEY'S DOCKET NO: 24544

U.S. APPLICATION NO. (if known) not yet assigned	INTERNATIONAL APPLICATION NO. PCT/NL00/00523	DATE: <u>03</u> April 2001 (<u>03</u> .04.2001)
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21. <u>x</u> The following fees are submitted: Basic National Fee (37 CFR 1.492(a)(1)-(5): Search Report has been prepared by the EPO or JPO:.....\$860.00 International preliminary examination fee paid to USPTO (37 CFR 1.482).....\$690.00 No international preliminary examination fee paid to USPTO (37 CFR 1.482) but international search fee paid to USPTO (37 CFR 1.445(a)(2)).....\$710.00 Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO.....\$1000.00 International preliminary examination fee (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(2)-(4).....\$ 100.00 ENTER APPROPRIATE BASIC FEE AMOUNT =	CALCULATIONS \$860.00 \$860.00	PTO USE ONLY
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Surcharge of \$130.00 for furnishing the oath or declaration later than <u> </u> 20 <u> </u> 30 months from the earliest claimed priority date (37 CFR 1.492(e)).	\$	
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CLAIMS	NO. FILED	NO. EXTRA	RATE		
TOTAL	6 -20=	0	X \$ 18.00	\$	0.00
INDEPENDENT	2 - 3=	0	X \$ 80.00	\$	0.00
Multiple dependent claims(s) (if applicable)			+ \$260.00	\$	0.00
TOTAL OF ABOVE CALCULATIONS =				\$	860.00
Reduction by ½ for asserting small entity, if applicable. (Note 37 CFR 1.9, 1.27, 1.28).				\$.00
SUBTOTAL =				\$	860.00
Processing fee of \$130.00 for furnishing the English translation later than <u> </u> 20 <u> </u> 30 months from the earliest claimed priority date (37 CFR 1.492(f)).				\$	0.00
TOTAL NATIONAL FEE =				\$	860.00
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property +				\$	40.00
TOTAL FEES ENCLOSED =				\$	900.00
				Amount to be: refunded	\$
				charged	\$

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a. ☒ Two checks in the amount of \$900.00 to cover the above fees is enclosed.

b. ☐ Please charge my Deposit Account No. 14-0112 in the amount of \$ _____ to cover the above fees. (A duplicate copy of this sheet is enclosed.)

c. ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 14-0112.


d. Fees are to be charged to a credit card ☐ WARNING: Information on this form may become public ☐ Credit Card Information should not be included on this form. ☐ Provide credit card information and authorization on PTO-2038 _____

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed to request that the application be restored to pending status.

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 GARY M. NATH
 Registration Number 26,965
 Customer No. 20529

Rev. 02/98

09/806949

JCO8 Rec'd PCT/PTO 03 APR 2001

BOX PATENT APPLICATION

Attorney Docket No. 24544

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Robert Jean LEGRO

Sijbert HONKOOP

Serial No. NOT YET ASSIGNED

Filed: April 3, 2001

For: **A METHOD FOR THE PROTECTION OF GERMINATING SEED AND PESTICIDE-COATED PELLETS**

PRELIMINARY AMENDMENT

The Commissioner for Patents
Washington, D.C. 20231

Sir:

Prior to examining on the merits and calculating the filing fee for the national phase application filed herewith, please amend the above-identified patent application as follows:

IN THE CLAIMS:

Please amend claims 3-5 as per attached with this preliminary amendment. Pursuant to the new rules implementing the AIPA, a clean copy of the amended claims is attached along with a marked-up copy of the claims indicating the proposed claim amendments.

REMARKS

The above amendments have been made to remove multiple dependencies from the claims, and no new matter has been added.

Respectfully submitted,
NATH & ASSOCIATES

By: 

Gary M. Nath
Registration No. 26,965
Customer No. 20529

Date: April 3, 2001
NATH & ASSOCIATES
1030th Street, NW - 6th Floor
Washington, D.C. 20005
GMN/lis:AMENDpreml

[illegible]

1. Method for the protection of germinating seed coated with a pesticide, characterized in the seed-containing pellets and pesticide-containing pellets are sown as individual pellets at the same time.
2. Method according to claim 1, characterized in that the pesticide-containing pellets have substantially the same shape and size as the seed-containing pellets.
3. (Amended) Method according to claim 1, characterized in that the pesticide-containing pellets comprise a dosis of pesticide that is sufficient for one seed germ.
4. (Amended) Method according to claim 1, characterized in that the pesticide-containing pellets contain a filler material.
5. (Amended) Method according to claim 1, characterized in that the pesticide-containing pellets and the seed-containing pellets have a substantially uniform diameter tanging from 0.5-5 mm.
6. Pesticide-containing pellet to be used in combination with a seed-containing pellet.

MARKED UP COPY OF CLAIM AMENDMENTS:

1. Method for the protection of germinating seed coated with a pesticide, characterized in that seed-containing pellets and pesticide-containing pellets are sown as individual pellets at the same time.
2. Method according to claim 1, characterized in that the pesticide-containing pellets have substantially the same shape and size as the seed-containing pellets.
3. (Amended) Method according to [claim 1 or 2] claim 1, characterized in that the pesticide-containing pellets comprise a dosis of pesticide that is sufficient for one seed germ.
4. (Amended) Method according to [any of the above claims 1-3] claim 1, characterized in that the pesticide-containing pellets contain a filler material.
5. (Amended) Method according to [any of the above claims 1-4] claim 1, characterized in that the pesticide-containing pellets and the seed-containing pellets have a substantially uniform diameter from 0.5-5 mm.
6. Pesticide-containing pellet to be used in combination with a seed-containing pellet.

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WO 800146-KP/lm

A method for the protection of germinating seed and pesticide-coated pellets.

The present invention relates to a method for the protection of germinating seed coated with pesticide.

Such a method is known in the field. Usually pesticides, such as, for example insecticides and
5 fungicides are incorporated in the coatings of pelleted seeds.

The problem with many pesticides is that they can be rather phytotoxic for the germinating seed to which the pesticide is applied. One reason for this is the high
10 dosage in which the pesticide often must be applied to afford adequate protection against the pest to be fought. The negative effect may vary from retarded germination to abnormal seedlings, or even to a total lack of germination of part of the seeds. Of course, the degree in which
15 germination may be affected so negatively depends also on the type of pesticide, the seed species, the sensitivity of the variety, the vigour of the seed batch, and the environmental conditions during germination and emergence of the treated seed.

20 By covering the seed with a coating, the negative effect of the pesticide on the seed can be limited to some extent. For instance, the seed may be coated (pelleted) with a relatively thick layer of inert material on which the pesticide is applied in such a way that the pesticide
25 is not directly in contact with the seed.

However, a further disadvantage of this method of pelleting is that at high dosages such a coating affords insufficient protection against the possible phytotoxic effect of the pesticide. Furthermore, due to the high
30 dosages the coating's physiochemical properties may be changed significantly, indirectly producing a negative effect due to a change in the oxygen/water balance in the coating.

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The present invention has the aim to avoid these disadvantages. This aim is achieved according to the present invention by simultaneously sowing seed-containing pellets and pesticide-containing pellets as separate
5 pellets.

Because the seed germ and the pesticide are incorporated in separate pellets, the seed in the seed-containing pellet can germinate and grow before it comes into contact with the pesticide which will be released
10 from another pellet. Thus during the most vulnerable stage, the moment of germination, there is no contact yet with the pesticide.

It is noted that in the present invention the term pesticide-containing pellets also includes film-coated inert cores (see example 3).
15

According to a preferred embodiment of the invention, the pesticide-containing pellets have substantially the same size and shape as the seed-containing pellets.

20 Since the pesticide-containing pellets are substantially the same size as the seed-containing pellets, it is thus possible with precision sowing machinery to sow one pesticide-containing pellet per plant. Thus in a simple way both sub- and overdose can be
25 effectively avoided.

According to a preferred embodiment of the invention the pesticide-containing pellets comprise a pesticide dosage which is sufficient for one seed germ.

Thus unnecessary waste of the expensive pesticide
30 is avoided, and furthermore there is the least possible impact on the environment.

According to another aspect of the method of the present invention, the pesticide-containing pellets contain a filler material.

35 By supplementing the exact dosage of pesticide with an appropriate amount of filler material, the size of the pesticide-containing pellet can be adapted to that of the seed-containing pellet.

According to an advantageous embodiment of the invention, both pesticide- and seed-containing pellets have a substantially uniform diameter ranging from 0.5-5 mm.

5 The invention also relates to a pesticide-
containing pellet for use in combination with a seed-
containing pellet.

By sowing pellets having the same shape and size,
an optimal sowability with precision sowing machines can
10 be achieved.

According to the invention, the pesticide in the pesticide-containing pellet may be, for example, acaricides or miticides, bactericides, fungicides, herbicides, insecticides (e.g. Rovral® (Rhone Poulenc), Gigant® (DowElanco), Gaucho® (Bayer), Oncol® (Luxan), Mundial® (Rhone Poulenc), Birlane® (Cyanamid) etc.), molluscicides, nematocides and rodenticides are used but also growth hormones, nutrients, germination stimulants, micro organisms, pheromones, biological preparations, etc.

20 All types of filler material commonly used in the seed coating business can be used such as, for example, clay , perlite, diatomaceous earth, quartz, cellulose, vermiculite, mica, etc.

Naturally the pesticide-containing pellet may be
25 produced in any desired shape and size depending on the
seed-containing pellets to be sown at the same time.

The core of the pesticide-containing pellet according to the invention may be inert, for example, a glass-bead, perlite, plastic, pumice or any other suitable material. If desired however, it is also possible to use 30 killed, non-germinating seed (for example killed by heat treatment, gamma rays, microwave etc.) or other biodegradable organic material which has no detrimental effect on the seed germination.

35 Optionally according to the invention, a substance may be added to the pesticide-containing pill to regulate the release of the pesticide.

The present invention will now be further elucidated with reference to a number of exemplary embodiments. Figures 1-4 show alternative embodiments of a pesticide-containing pellet according to the invention.

5 Figure 1 shows a pesticide-containing pellet 1 with a core 2, which core is surrounded by the active material 3.

10 Figure 2 shows a pesticide-containing pellet 1 with a core 2, which core 2 is surrounded by a filler 4 provided with a coating of active material 3.

 Figure 3 shows a pesticide-containing pellet 1 with a core, core 2 is surrounded by an active material 3 provided with a coating of filler 4.

15 Figure 4 shows a pesticide-containing pellet 1 with a core 2, which core is covered successively with a layer of filler 4, a layer of active material 3 and a coating of filler 4.

20 Naturally the pesticide-containing pellets may have any shape as long as this shape substantially resembles the shape of the seed-containing pellets.

 Figure 5 shows a graph which illustrates the release of active component from a (viable) seed-containing pellet according to the prior art (solid line) in comparison with a pellet according to the present
25 invention (dotted line).

 Figure 6 shows germinated lettuce seedlings from seed-containing pellets sown separately but simultaneously with pesticide-containing pellets (present invention).

30 Figure 7 shows germinated lettuce seedlings from pellets containing both seed and pesticide (prior art).

 The invention will now be elucidated with reference to a number of non-limiting examples.

Example 1

35 One million lettuce seeds (*lactuca sativa*) in a batch weighing 1,10 gram per 1 thousand grains were killed by means of gamma-rays (40 kGy). The batch was pelleted according to the standard procedure, using a standard 100

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cm diameter pelleting-pan (Vingerlings Machinefabriek
b.v., Rotterdam, Netherlands).

This process entailed the alternating addition of
coating material (C-1, Incotec) and binding solution (Sol-
5 1, Incotec) providing pellets having a uniform shape and
size (3.25-3.5 mm slot screen).

Then the pellets were dried for 1.5 hours at
40°C. In a fume-cupboard, at room temperature, 2000 ml of
a commercial coating-formulation (Disco Color Red L083)
10 was mixed with 1143 g of insecticide powder Gaucho 70 WS®
(Bayer) and 2660 ml water. The batch of 1 million dried
pellets was processed in a Pancoater (Ramacota 36) of a
diameter of 36 inches according to the standard process.

This process entailed that during the entire
15 process (120 min.) the coating-mixture was evenly and
slowly distributed over the pellets while continuously
drying (drying temperature = 55°C), resulting in the
pellets as described in Figure 2. The insecticide is
comprised in the thin film of coating on the outside of
20 the pellet.

The above-mentioned pellets have a recovery of
98% (recovery measurements done by a HPLC) of the active
ingredient imidacloprid, the active component (a.c.) of
the Gaucho-formulation, measuring a distribution
25 coefficient of variation of 10%.

The insecticide is released into the water from
the produced Gaucho-pellets (800 g a.c./million pills) in
the same way as from the pellets comprising both the seed
and the Gaucho (800 gram a.c./million pellets) in the same
30 pellet (see Figure 5).

Figure 5. shows the release into water of the
active component from a viable seed-containing pellet
according to the prior art (solid line) and from a pellet
according to the invention (dotted line). Plotted are the
35 recovery in % against time (minutes).

The seed-containing pellets and the Gaucho-
containing pellets (800 gram a.c./million pellets) sown as
separate pills (Fig. 6) germinate more evenly than the

pellets that contain both live seed and Gaucho (800 g a.c./million pellets) in one pellet (see Fig. 7).

The above example is also applicable to other seed species, such as:

- 5 - Tobacco (*Nicotiana tabacum*) in the pellet size 1.75-2.00 mm with a dosis of 200 g imidacloprid/million pellets.
- Sugar beet (*Beta Vulgaris*) in the pellet size 3.75-4.50 mm with a dosis of 900 g imidacloprid/million pellets.

10

Example 2.

From a batch of three million glass-beads pellets were produced according to the standard procedure. The batch was processed in a pelleting pan with a diameter of 15 100 cm (Vingerlings Machinefabriek b.v., Rotterdam, Netherlands). In this method the coating material (C-22, Incotec) and binding solution (Sol-1, Incotec) were added alternately in order to produce pellets of homogeneous size and shape (1.50-1.75 mm slot screen).

20 Subsequently, the pellets were dried at 60°C for 45 minutes. In a fume-cupboard at room temperature 31.5 ml of a commercial coating formulation (Disco Color Red L083, Incotec) was mixed with 18.0 gram of insecticide powder Gaucho 70 WS® Bayer) en 10.4 ml of water. A batch of 25 90.000 dry pellets was placed in a 'Rotostat coating machine' with a diameter of 30 cm (Marline, Norfolk, England). The mixture of insecticide and coating formulation was applied by means of the standard 'spinning disc' (6 cm diameter). After 3 minutes process time, the 30 mixture was distributed evenly over the pellets and the pellets were transferred to a standard pelleting pan. Alternately, finishing-material (F-13, Incotec) and binding solution (Sol-1, Incotec) were added in order to produce pellets of homogeneous size and shape (2.00-2.25 35 mm slot screen).

Then, the pellets were dried at a temperature of 60°C for 45 minutes resulting in pellets as described in Figure 4.

Example 3

In a fume cupboard at room temperature, 345 g of a commercial coating formulation (Disco L126, Incotec) is mixed with 107 g insecticide formulation Gigant 480FS (DowElanco) and 11.5 g fungicide solution Rovral Aquaflo (Rhone Poulenc). A batch of 1495 gram cauliflower seeds (Brassica oleracea) with a seed-fraction of 1.50-1.75 mmR was killed by means of microwave (300W, 45 min., Samsung M935). The batch was processed according to the standard procedure in a Pancoater (Ramacota-18) with an 18 inch diameter. This procedure entailed that during the entire process the coating formulation was slowly distributed over the seeds by means of an air spray gun while continuously drying (drying temperature = 55°C) resulting in film-coated seeds as described in Figure 1. The insecticide is comprised in the thin layer of film coating on the outside of the 'dead' seed.

The present invention is not limited to the embodiments mentioned in the above examples. They can be varied in many ways, all deemed within the scope of the appended claims.

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CLAIMS

1. Method for the protection of germinating seed coated with a pesticide, **characterized** in that seed-containing pellets and pesticide-containing pellets are sown as individual pellets at the same time.

5 2. Method according to claim 1, **characterized** in that the pesticide-containing pellets have substantially the same shape and size as the seed-containing pellets.

 3. Method according to claim 1 or 2, **characterized** in that the pesticide-containing pellets
10 comprise a dosis of pesticide that is sufficient for one seed germ.

 4. Method according to any of the above claims 1-3, **characterized** in that the pesticide-containing pellets contain a filler material.

15 5. Method according to any of the above claims 1-4, **characterized** in that the pesticide-containing pellets and the seed-containing pellets have a substantially uniform diameter ranging from 0.5-5 mm.

 6. Pesticide-containing pellet to be used in
20 combination with a seed-containing pellet.

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Abstract

The invention relates to a method for the protection of germinating seed from pesticide, wherein seed-containing pellets and pesticide-containing pellets are sown separately but simultaneously. According to a preferred embodiment of the invention, the pesticide-containing pellets have substantially the same shape and diameter as the seed-containing pellets, and the pesticide-containing pellets comprise the exact dosis of pesticide that is sufficient for one seed germ. Generally, the pellets with pesticide have a diameter ranging from 0,5-5.0 mm.

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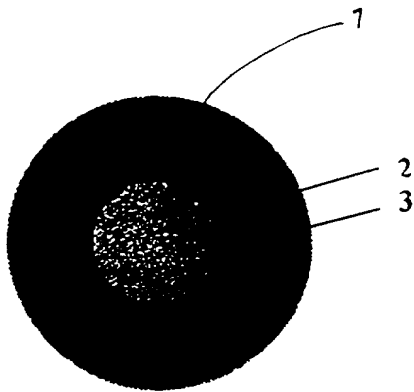


Figure 1

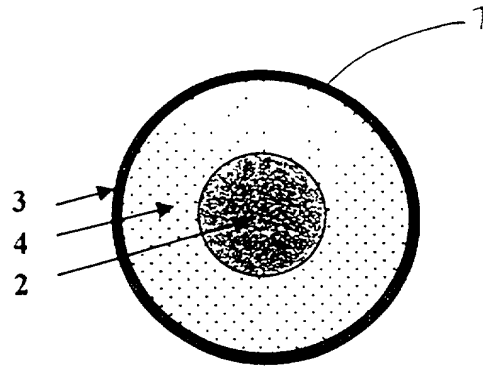


Figure 2

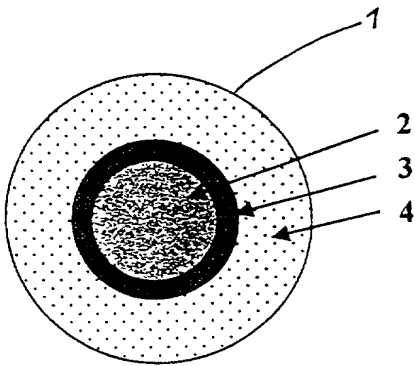


Figure 3

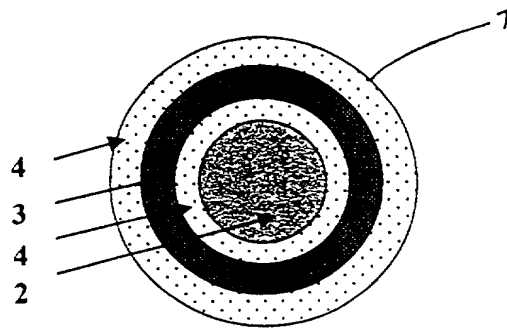


Figure 4

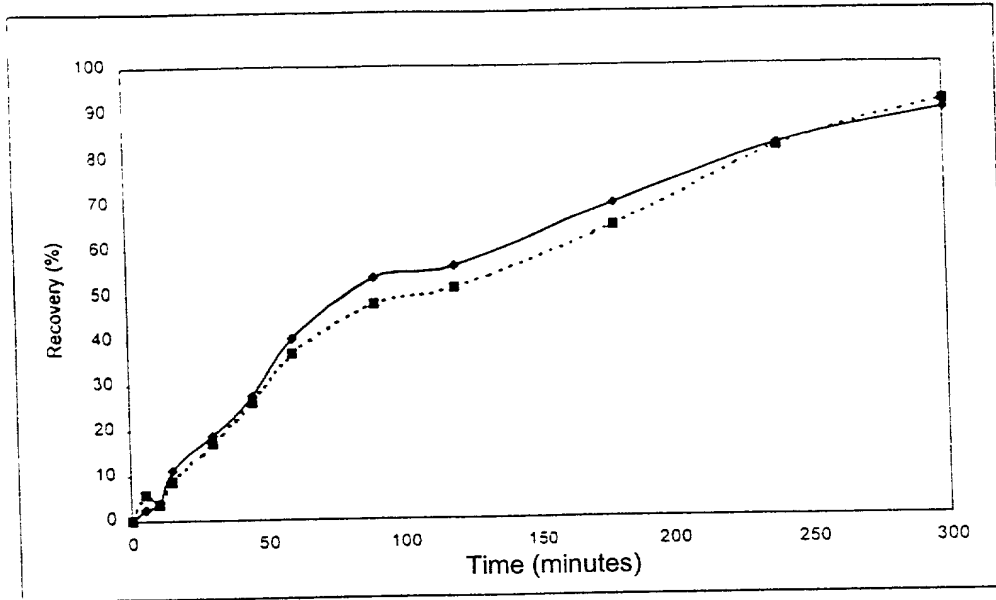


Figure 5

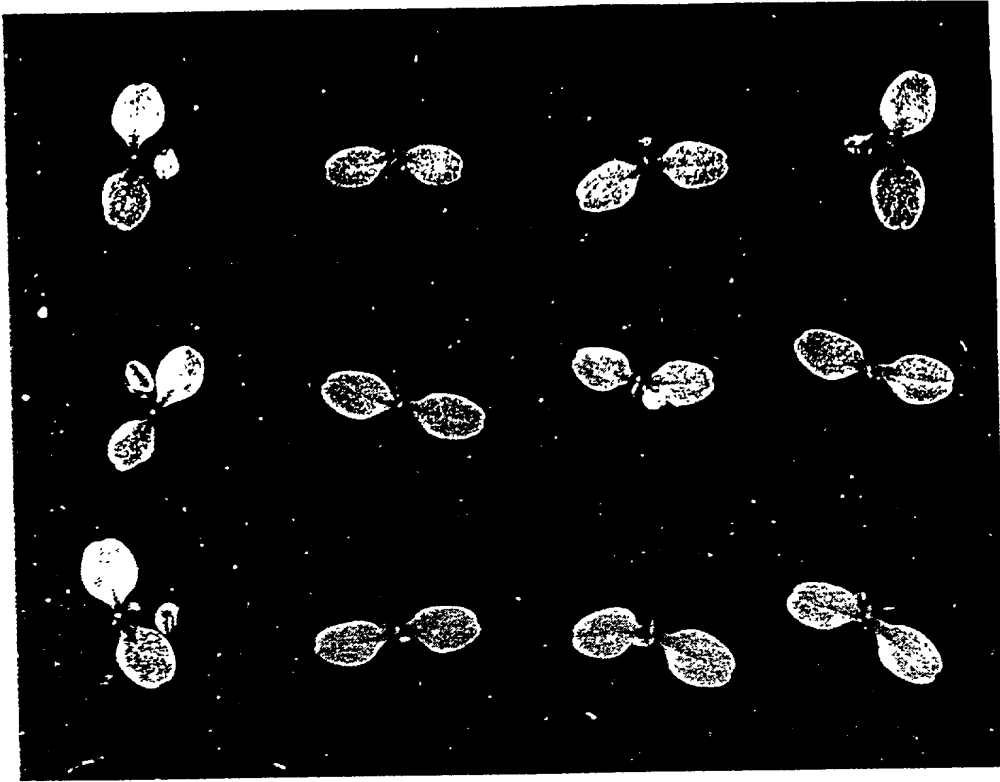


Figure 6

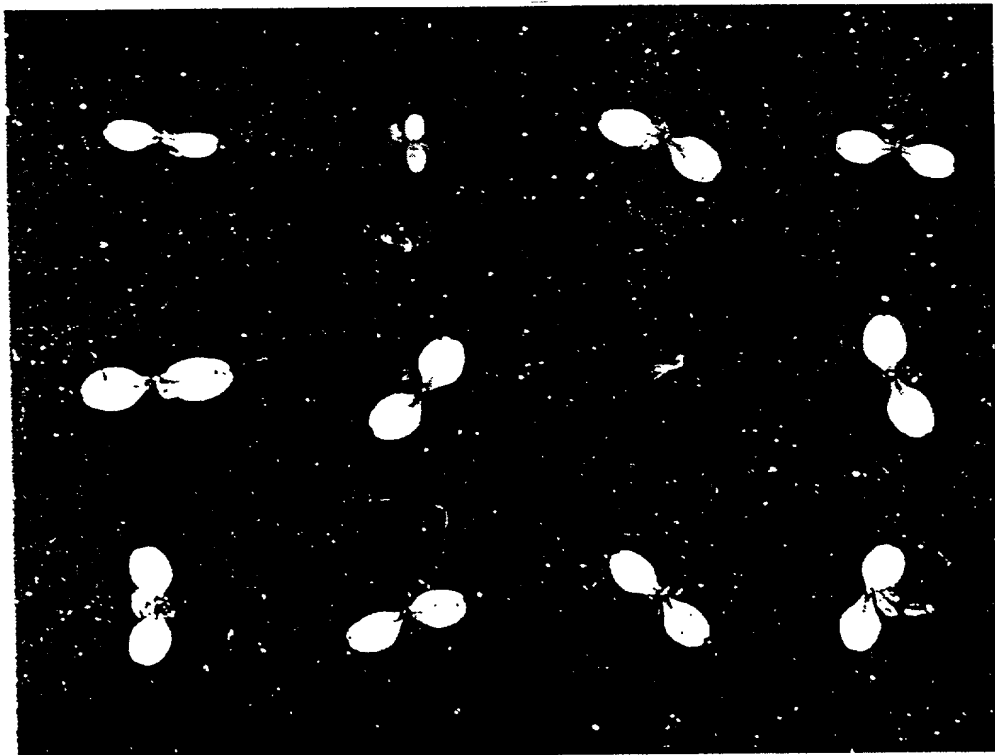


Figure 7

45 447 62 WO - KP/CS

DECLARATION FOR PATENT APPLICATION

Attorney Docket: 24544
Page 1 of 2

As a below-named inventor(s), I/we hereby declare that:

My/Our residence(s), post office address(es) and citizenship(s) is/are as stated below next to my/our name(s).

I/We believe I/we am/are the original inventor, first and sole (if only one name is listed below) or the original, first and joint inventors (if plural names are listed below) of the subject matter which is claimed, and for which a patent is sought on the invention entitled:

A PROCESS FOR THE PROTECTION OF GERMINATING SEED AND PESTICIDE CONTAINING PILL
the specification of which: (check one)

☐ is attached hereto.

☒ was filed on 24 July 2000, as Serial No. PCT/NL00/00523,

and was amended on _____ (if applicable).

We hereby state that we have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

We acknowledge the duty to disclose information which is material to the patentability of this application as defined by 37 CFR § 1.56.

We hereby claim foreign priority benefits under 35 U.S.C. § 119 of any foreign application(s) for patent or inventor's certificate listed below, and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Prior Foreign Applications:

<u>1012918</u> (Application No.)	<u>NL</u> (Country)	<u>26 / August / 1999</u> (Day/Month/Year Filed)	Priority Claimed	
			<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
<u> </u> (Application No.)	<u> </u> (Country)	<u> </u> (Day/Month/Year Filed)	<input type="checkbox"/> Yes	<input type="checkbox"/> No
<u> </u> (Application No.)	<u> </u> (Country)	<u> </u> (Day/Month/Year Filed)	<input type="checkbox"/> Yes	<input type="checkbox"/> No

We hereby appoint Gary M. Nath, Reg. No. 26,965; Harold L. Novick, Reg. No. 26,011; Todd L. Juneau, Reg. No. 40,669; Lee C. Heiman, Reg. No. 41,827; Jerald L. Meyer, Reg. No. 41,194; Joshua B. Goldberg, Reg. No. 44,126; David R. Murphy, Reg. No. 22,751; Paul A. Sacher, Reg. No. 43,418; Nahied K. Usman, Reg. No. 47,148; Roger Hahn, Reg. No. 46,376; and Marvin C. Berkowitz, Reg. No. P-47,421; as my attorneys to prosecute this application and transact all business in the U.S. Patent and Trademark Office connected therewith.

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Send Correspondence to:
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Washington, D.C. 20005 U.S.A.

We hereby claim the benefit under 35 U.S.C. § 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by 35 U.S.C. § 112, first paragraph, I/we acknowledge the duty to disclose material information as defined in 37 CFR § 1.56 which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

(U.S. Application Serial No.)	(U.S. Filing Date)	(Status--patented, pending, abandoned)
(U.S. Application Serial No.)	(U.S. Filing Date)	(Status--patented, pending, abandoned)

Attorney Docket: 24544
Page 2 of 2

Full name of sole or first inventor: Robert Jean LEGRO

Inventor's Signature

Date 12 MARCH 2001

Residence: De Gouw 6, 1602 DN ENKHUIZEN, The Netherlands

NLX

Country of Citizenship: The Netherlands

Post Office Address: same as residence

Full name of second inventor: Sijbert HONKOOP

Inventor's Signature

Date 15 MARCH 2001

Residence: Maasdijk 182a, 2676 LC MAASDIJK, The Netherlands

NLX

Country of Citizenship: The Netherlands

Post Office Address: same as residence

COPPER	
Year	Production, 1000 tons
1987	12.7
1988	12.4
1989	12.4
1990	12.4
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